Sub Working Group on Smart Traffic and Transit Technologies

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Technology Overview

- Systems- security, intelligence, monitoring, management
- Hardware- traffic signals, cameras, sensors, off-road equipment, busses, trains, vehicles with varying levels of autonomy (drones, shuttles), EV charging equipment, micromobility

Technology Overview (cont'd)

- Software- route planning
- Connectivity- Cellular Vehicle to Everything (C-V2X), 5G, autonomous navigation (edge and cloud)
- Edge Computing (self driving vehicles)
- Artificial Intelligence
- Linkage to IoT AB Subgroup on Smart and Critical Infrastructure

Opportunities and Benefits

- Safety Applications
  - Improving Road Safety/Protecting Vulnerable Road Users
- Use Cases
  - emergency vehicle traffic pre-emption
  - entering school or work zone
  - pedestrian crossing ahead;

Opportunities and Benefits (cont'd)

- Support Functions
  - Package, Food and Medicine Delivery
- Congestion Mitigation/Environmental Benefits
  - Orderly flow of traffic
  - Less time idling
- Increase Productivity
  - Less time stuck in traffic

Barriers

- Policy/regulations
- Accessibility/inclusion
- Education/training and resources
- Interoperability
- Cybersecurity
- Funding

Draft Recommendations

- R01 – National Data/Privacy Framework for Smart Transportation
- R02 – Research and industry standards for Autonomous Vehicle Technologies
- R03 – Programs and grants for rural areas for Smart Transportation Technologies
- R04 – Support industry led standards in interoperability and cybersecurity for Smart Transportation Technologies
  R05 - Invest and promote education/workforce development in Smart Transportation Technologies
- R06 – Regulatory guidance and research funding for the Drone Industry

Draft Recommendation 1: (Details)

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The federal government should facilitate/support the development a National Data/Privacy Framework that clearly delineates the different aspects of data (i.e., machine versus personal) and how they should or shouldn't be utilized in smart transportation technologies.

Justification

- Data from a Traffic Camera at an intersection could be used to determine who was responsible for an accident and allow for more efficient insurance claims.
- Data generated from a connected vehicle and its corresponding roadside infrastructure can be utilized to transmit basic safety information to the vehicles driver such as entering a school or work zone.
- Emergency Vehicles and corresponding roadside infrastructure can generate data to preempt traffic signals so the vehicles can get to their destination sooner.

Draft Recommendation 2: (Details)

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The federal government should support research and industry lead standards in areas such as telematics and sensor technologies for autonomous vehicles. These standards should be based on high-level safety guidelines determined by the National Highway Traffic Safety Administration

Justification

- Interoperability: Devices from different manufacturers need to communicate and work together seamlessly.
- Safety: Devices need to communicate basic safety information to other vehicles as well as corresponding roadside infrastructure.
- Innovation and competition: A level playing field for businesses and developers, regardless of their size or market share can encourage the development of new products and services ultimately benefiting consumers and the entire industry.
- Cost savings: A reduction in the need for customized solutions and simplifying the procurement process is particularly relevant for vehicle tier 1 and tier 2 component suppliers who would provide the same component across different automotive vehicle manufacturers.
- Regulatory compliance: Standards and protocols can serve as a foundation for subsequent government regulations and policies

Draft Recommendation 3: (Details)

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The federal government should consider developing programs and grants to allow underserved and less developed communities as well as rural areas to adopt smart transportation technologies.

Justification

- Accessibility and Inclusion: The benefits from the adoption of these technologies are not necessarily available to everyone.
- Stimulating private investment: Government grants and programs targeted towards these areas could spur private investment in these areas as well.
- Creating jobs and economic growth: As the technologies are adopted in these areas, they will require skilled workers to develop, implement, and maintain these systems. Financial incentives can help stimulate this job growth and support the development of a skilled workforce in the IoT sector.

Draft Recommendation 4: (Details)

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The federal government should support industry lead standards for minimum baseline interoperability and cybersecurity requirements for smart transportation technologies and corresponding transportation infrastructure (i.e. sensors in roads, cameras at intersections).

Justification

- Interoperability: Industry standards and protocols ensure that devices from different manufacturers can communicate and work together seamlessly. This is particularly important when dealing with multiple states and local jurisdictions.
- Addressing Cybersecurity Risks: Industry standards that describe minimum cybersecurity requirements of these technologies (i.e., having unique set of keys for traffic controller cabinets) will help to provide implementing agencies some level of assurance that these risks are mitigated.
- Innovation and competition: Standards can stimulate innovation and competition by providing a level playing field for businesses and developers, regardless of their size or market share. With a level baseline companies can now build upon it and tailor their own solutions.
- Cost savings: Standardization can lead to cost savings for businesses by reducing the need for customized solutions and simplifying the procurement process.
- Regulatory compliance: Standards and protocols can serve as a foundation for subsequent government regulations and policies.

Draft Recommendation 5: (Details)

Draft Recommendation 5: (Details)

The federal government should invest and promote education and workforce development in smart transportation technologies.

Justification

- Addressing skills gap: This is particularly evident for traffic engineers who are not familiar with these types of new technologies. They think of traffic engineering as concrete and asphalt
- Enhancing competitiveness: A well-trained and skilled workforce is a key factor in the competitiveness of the sector. By investing in education and workforce development, the government can help businesses stay ahead of international competition and maintain a strong position in the global market.
- Fostering innovation: A skilled workforce with a strong foundation in these technologies can drive innovations and development in new cutting-edge solutions.
- Supporting digital transformation: The transportation sector is already undergoing a digital transformation and businesses need to adapt their operations and processes accordingly.
- Encouraging job creation: As these new cutting-edge technologies are being developed in the transportation sector new jobs may be created-particularly as autonomous vehicles become more mainstream.

Draft Recommendation 6: (Details)

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The Federal Government should provide overarching regulatory guidance for the drone industry. The Federal Government should also provide funding for the drone industry for additional research in order that existing technical obstacles can be overcome.

Justification

- Conflicting Regulations/Legislations: With regulations/legislations that conflict there is a question of liability in the event of an accident involving a drone. There are also safety concerns.